

## A New South American Genus of Pentatomini (Hemiptera:Pentatomidae)

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**Abstract:** *Ladeaschistus*, new genus, is erected to contain four South American species with preapical femoral tubercles. Three species, *L. armipes*, *L. bilobus*, and *L. trilobus* are transferred from *Euschistus* and redescribed. The fourth member of the genus is *L. boliviensis*, NEW SPECIES. The genus is compared to *E. tristigmus*, the type species of *Euschistus*, and to *E. anticus*, a representative of a South American species group.

### INTRODUCTION

The South American pentatomids *Euschistus armipes*, *E. bilobus*, and *E. trilobus* differ notably from their current congeners in having the femora armed on the inferior face with conspicuous preapical tubercles (Fig. 18). They differ less obtrusively in having the superior ridge of the pygophore tectiform (Figs. 12, 28, and 37) and in having parameres that bend inversely (Figs. 14, 22, 33, and 41) from those of their congeners (Figs. 2 and 8). Removal of these species from their present genus contributes toward a more practical classification within the Pentatomini. Their unique combination of characteristics necessitates the erection of a new genus to contain them and a new species from Bolivia.

### *Ladeaschistus*, NEW GENUS

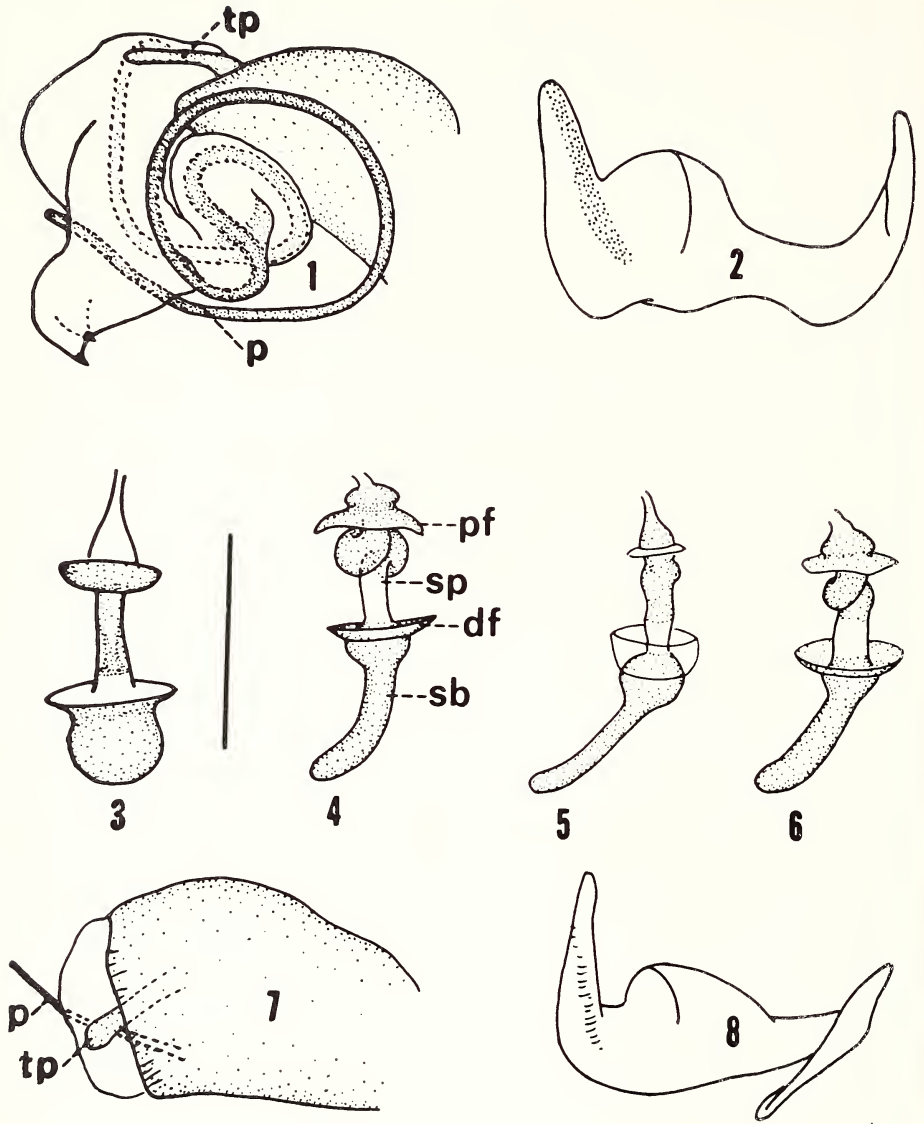
Width of head across eyes and length subequal. Juga and tylus obtuse at apex, subequal in length, or juga slightly surpassing tylus. Length of first antennal segment placing distal end near apex of head; each of four succeeding segments much longer than first. Bucculae evanescent at base of head; distal end of first rostral segment reaching or slightly surpassing posterior limit of bucculae; apex of rostrum attaining to slightly surpassing metacoxae.

Pronotum about 2.7 to 3.4 times as wide at humeri as long at meson; emargination behind head moderately deep (Fig. 24). Anterolateral angles truncate, contiguous with eyes, extending little or not at all laterad of eyes. Anterolateral margins carinate and denticulate.

Scutellar width at base subequal to length. Frena reaching about 0.6 to 0.7 distance from base toward narrowly rounded apex. Distal margin of coria extending obliquely

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**Acknowledgment:** I am indebted to Dr. Per Inge Persson, of the Naturhistoriska Riksmuseet, Stockholm, for comparing the description and drawings, insofar as possible without dissection, to the lectotype of *Euschistus trilobus* Stål, for confirming the apparent conspecificity of the type series, and for providing data from the labels of these specimens.

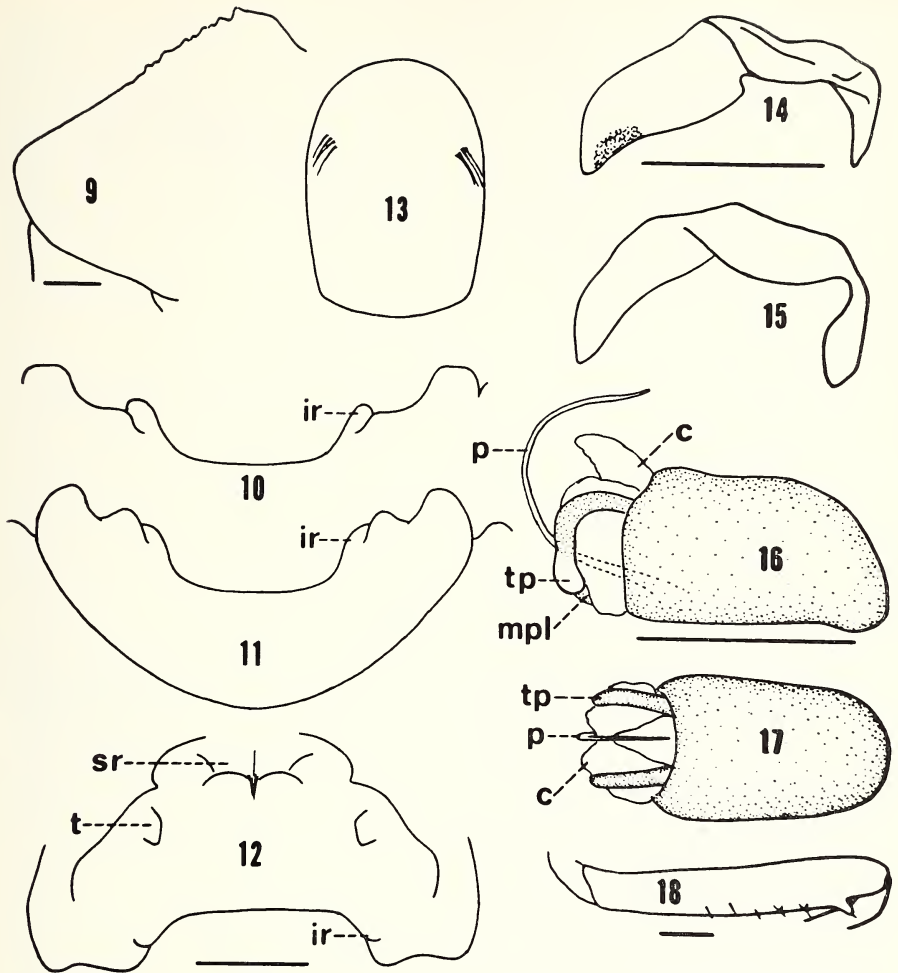


FIGS. 1 and 2. *E. tristigmus*. Fig. 1. Theca and related structures, right lateral aspect; penisfilum (p), thecal process (tp). Fig. 2. Right paramere, lateral aspect.

FIGS. 3 to 6. Spermatheca, distal portion. Fig. 3. *E. tristigmus*. Fig. 4. *L. armipes*; distal flange (df), proximal flange (pf), spermathecal bulb (sb), spermathecal pump (sp). Fig. 5. *E. anticus*. Fig. 6. *L. bilobus*.

FIGS. 7 and 8. *E. anticus*. Fig. 7. Theca and related structures, right lateral aspect; penisfilum (p), thecal process (tp). Fig. 8. Right paramere, lateral aspect.

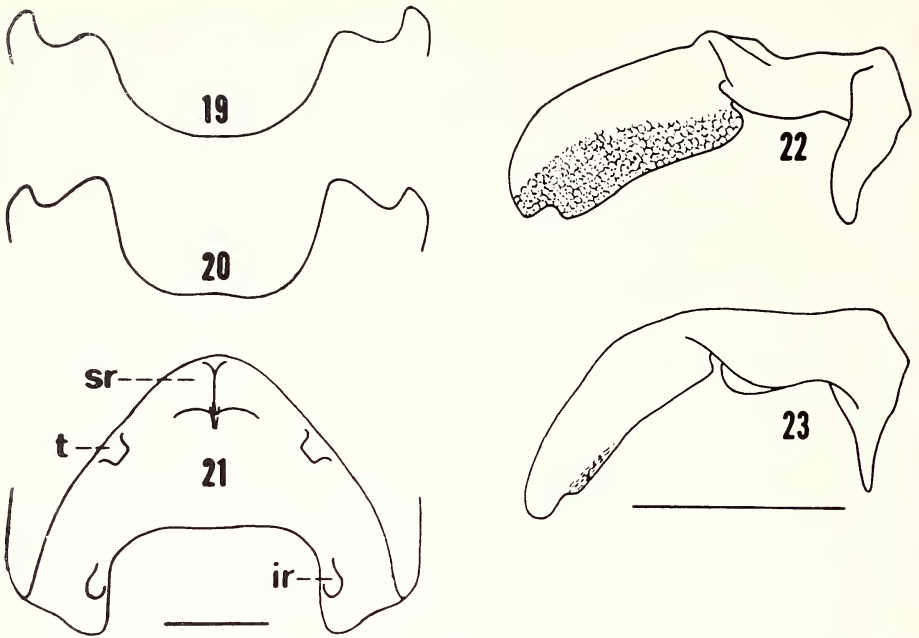
Dimensional lines equal 0.5 mm.



FIGS. 9 to 18. *L. armipes*. Fig. 9. Pronotum. Fig. 10. Posterior margin of pygophore, caudal view; inferior ridge (ir). Fig. 11. Pygophore, ventral view with anterior and posterior margins on same focal plane; inferior ridge (ir). Fig. 12. Genital cup, with proctiger and parameres removed; inferior ridge (ir), superior ridge (sr), tubercle (t). Fig. 13. Proctiger. Fig. 14. Right paramere, anterolateral aspect. Fig. 15. Same, rotated 90° toward observer. Fig. 16. Theca and related structures, right lateral aspect; conjunctiva (c), median penal lobe (mpl), penisfilum (p), thecal process (tp). Fig. 17. Same, dorsal aspect. Fig. 18. Left prothoracic femur, anterior face. Dimensional lines equal 0.5 mm.

posterolateral from near apex of scutellum, terminating in acute angle with costal margin above fourth visible segment of abdomen.

Evaporative area on each side extending about halfway from inner margin of ostiole toward lateral margin of metapleuron; ostiolar auricle covering about half of distance along anterior metapleural margin from inner margin of ostiole to lateral limit of elevated



FIGS. 19 to 23. *L. boliviensis* n. sp. Fig. 19. Posterior margin of pygophore, caudal view. Fig. 20. Posterior margin of pygophore, ventral view. Fig. 21. Genital cup; inferior ridge (ir), superior ridge (sr), tubercle (t). Fig. 22. Right paramere, anterolateral aspect. Fig. 23. Same, rotated 90° toward observer. Dimensional lines equal 0.5 mm.

evaporative area. Anterior and middle femora of males armed on inferior face with one or more stout tubercles, these little to much reduced in females; tibiae sulcate. Abdomen without median tubercle or spine.

Superior ridge of pygophore acutely produced, sloping ventrolaterad on each side from median longitudinal ridge, setose at apex (Figs. 12, 21, 28, and 37). Inferior ridge reduced to tumescence located along posterior margin of pygophore on each side of emargination. Parameres bent inversely, with dorsal edge curving ventrad (Figs. 14, 22, 33, and 41). Theca without lobes; thecal processes emerging dorsally (Figs. 17, 32, and 40). Conjunctiva with median lobe above median penal lobes. Penisfilum emerging mesally between median penal lobes.

Spermathecal bulb digitiform; spermathecal pump tightly convoluted at proximal flange (Figs. 4 and 6).

Type species: *Euschistus bilobus* Stål, 1872.

Relationship: The genital morphology of both sexes demonstrates that *Ladeaschistus* species form a homogeneous group whose phylogenetic relationship is much closer to a group of South American *Euschistus* of which *E. anticus* is representative than it is to the type species *E. tristigmus*. In *Ladeaschistus* the spermathecal bulb is digitiform, and the spermathecal pump convolutes tightly at the proximal flange (Figs. 4 and 6). In *E. anticus* the spermathecal bulb is also digitiform, but the spermathecal pump is only sinuous (Fig. 5). Contrarily, *E. tristigmus* has a spherical spermathecal bulb and a cylindrical spermathecal pump (Fig. 3). The seminal duct in *Ladeaschistus* and in *E. anticus* proceeds

directly in a median, ventral position from the ejaculatory reservoir to emerge between the median penial lobes as a short or relatively short penisfilum lying on the vertical median plane (Figs. 7, 16-17, 31-32, 39-40), in stark contrast to the convoluted seminal duct and long, coiled penisfilum in *E. tristigmus* (Fig. 1). *Ladeaschistus* also differs from the species group represented by *E. anticus* in the structure of the genital cup and in the dorsal rather than lateral position of the thecal processes.

The only other pentatomines in the Western Hemisphere with well-developed preapical femoral tubercles are the two species of *Sibaria*. These are morphologically close to but distinct from *Ladeaschistus*. The two genera are readily separable by the short rostrum, which reaches the mesocoxae, and the vertically rounded anterolateral margins of the pronotum in *Sibaria*.

*Ladeaschistus armipes* (STÅL), 1972

*Euschistus armipes* Stål, 1872, Svenska. Vet-Ak. Handl. 10 no. 4 p. 25; Berg, 1891, An. Soc. Cient. Arg. XXXII p. 277.

Dorsum light castaneous, narrowly ivory bordered on anterolateral margin of pronotum and basal half of costal margin of coria; rather dense punctation dark castaneous, often becoming fuscous on head, in submarginal band along anterolateral margins of pronotum, and exocoria. Brownish-yellow to rufous beneath; punctation concolorous with or a little darker than sclerites. Length of body 10.2 to 11.5 mm without membranes.

Head 2.1 to 2.3 mm wide across eyes; lateral margins tapering sinuously from eyes to apex, nowhere parallel. Antennae pale castaneous; length of segments 0.6 to 0.8; 1.0 to 1.2; 1.3 to 2.1; 1.2 to 2.0; 1.2 to 2.1 mm, last three segments exceptionally variable in length. Distal end of first rostral segment surpassing posterior limit of bucculae.

Pronotum 2.4 to 2.7 mm long at meson; anterolateral margins straight, apical half or more denticulate (Fig. 9); denticles and narrow border ivory; humeral angles scarcely produced, obtusely angular; subcalloused spot near posteromesal limit of each cicatrice sometimes pale. Scutellum 4.0 to 4.4 mm across base; weak fovea in basal angles composed of a few confluent shallow punctures; apex punctate, not differentially colored. Membrane of hemelytra brown, fading distally; veins simple or branched. Connexiva narrowly exposed; very margin, intersegmental sutures and subquadrate marginal spot in middle of each segment yellowish.

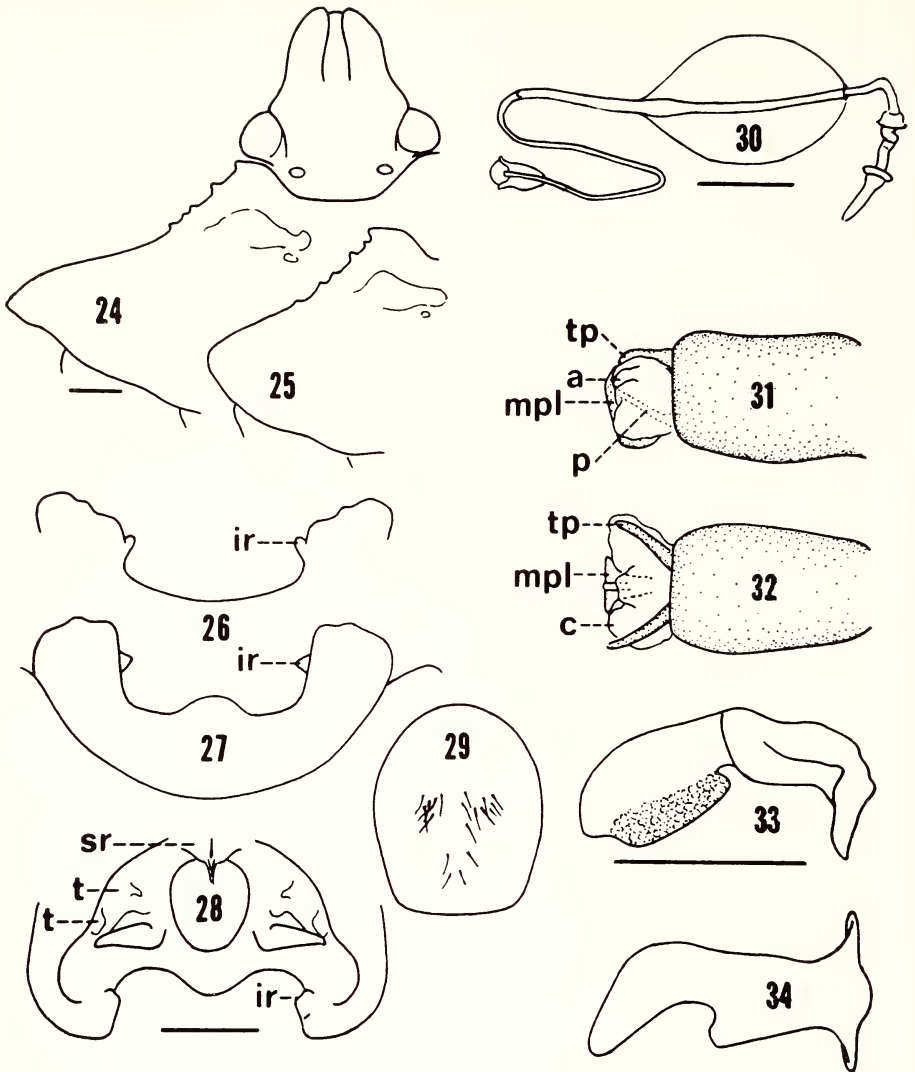
Punctation unevenly distributed on ventral surfaces of head and thorax, leaving irregular areas impunctate, subcalloused; abdominal venter shallowly punctate. Evaporative areas unicolorous. Legs pale castaneous. Prothoracic and mesothoracic femora armed on inferior face with pair of preapical tubercles; anterior tubercle of pair strong, larger than posterior tubercle; this pair usually preceded by one to four lesser tubercles, paired or not (Fig. 18). One or pair of small preapical tubercles usually present on femora of metathorax. Femoral tubercles generally smaller among females than corresponding tubercles among males. Intersegmental membranes and pseudosutures of abdomen dark castaneous; spiracles somewhat darker than sternites; incisures immaculate at lateral margins.

Broad emargination in posterior margin of pygophore descending in two steps, appearing yet more complex because of remnant of inferior ridge on each side (Figs. 10 to 12). Lateral walls of genital cup armed with large quadrate denticle. Transverse ridge near base of proctiger bearing tuft of setae on each side (Fig. 13). Reticulated area along ventral margin near apex of parameres small (Fig. 14). Thecal processes compressed, cultrate, with hyaline apical enlargement (Fig. 16).

Type. Female, in Naturhistoriska Riksmuseum, Stockholm. Not examined.

Distribution. Brazil: Bahia; Minas Gerais (type locality). Argentina: Misiones. Paraguay.





FIGS. 24 TO 34. *L. bilobus*. Fig. 24. Head and pronotum. Fig. 25. Variation in humeral angle. Fig. 26. Posterior margin of pygophore, caudal view; inferior ridge (ir). Fig. 27. Pygophore, ventral view with anterior and posterior margins on same focal plane; inferior ridge (ir). Fig. 28. Genital cup; inferior ridge (ir), superior ridge (sr), tubercle (t). Fig. 29. Proctiger. Fig. 30. Spermatheca. Fig. 31. Theca and related structures, right lateral aspect; conjunctival appendage (a), median penal lobe (mpl), penisilum (p), thecal process (tp). Fig. 32. Same, dorsal aspect; conjunctiva (c). Fig. 33. Right paramere, anterolateral aspect. Fig. 34. Same, rotated 90° toward observer. Dimensional lines equal 0.5 mm.

***Ladeaschistus boliviensis*, n. sp.**

Size, color, and form of *L. armipes*, differing in dorsal markings, in form of pygophore, and in form and reticulation of parameres.

Numerous small pale subcalloused spots of irregular form scattered over dorsum except on head.

Lateral lobes of pygophore strongly produced at inner angle on each side, resulting in much deeper median emargination than in *L. armipes* (Figs. 19 to 21); inferior ridge visible only from dorsal view; lateral margins of genital cup smoothly arcuate, undivided by vertical ridge as in *L. armipes*. Apex of parameres notched; reticulation extensive (Fig. 22).

HOLOTYPE. Male, labeled Bolivia, Santa Cruz, Prov. Chiquitos, Robore, 300 M. November 1959. Deposited in American Museum of Natural History.

PARATYPE. Female, same data (author's collection).

COMMENT. Although this insect agrees with *L. armipes* in most respects, the differences seem too numerous and of too great a magnitude to be of subspecific value.

***Ladeaschistus bilobus* (STÅL), 1872**

*Euschistus bilobus* Stål, 1872, Svenska Vet.-Ak. Handl. 10 no. 4 p. 25

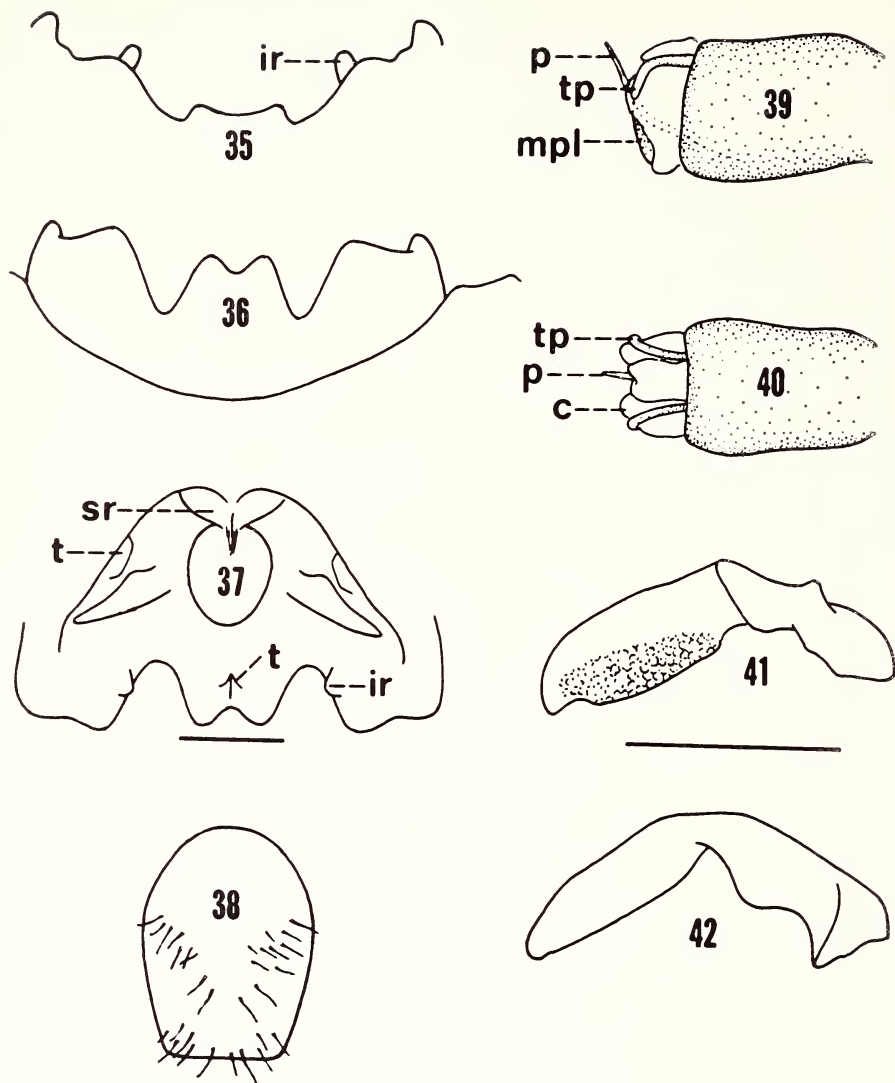
Dorsum medium brown to fuscous with head, anterior portion of pronotum and usually humeri darkest in lighter colored specimens; hemelytra sometimes faintly marked with large dark reticulations; calloused spot near posteromesal border of each cicatrice and small lacuna at distal end of radial vein in hemelytra usually pale; few to many small irregular subcalloused spots scattered on pronotum and scutellum. Ventral surfaces yellowish white, concolorously punctate. Length of body 8.2 to 9.3 mm without membranes.

Head 1.7 to 1.9 mm wide across eyes; disk nearly flat; lateral margins weakly sinuous, tapering from eyes to apex of head (Fig. 24). Basal segment of antenna brownish-yellow, following two segments mottled brown to fuscous, last two segments brown to fuscous except basal fourth to third of each pale yellow; length of segments 0.5 to 0.6; 0.8 to 1.0; 0.9 to 1.1; 1.3 to 1.5; 1.5 to 1.6 mm.

Pronotum 1.9 to 2.0 mm long at meson; anterolateral margins concave, anterior half denticulate; denticles small, mostly subacute and discreet, usually pale in part or whole; humeri obtusely angular to subacute (Figs. 24-25). Scutellum 3.0 to 3.5 mm wide at base, with small foveate cluster of black punctures in basal angles; apex punctate, not differentially colored. Membrane of hemelytra fumose; veins simple or furcate. Connexiva narrowly exposed, black, with narrow arcuate yellowish marginal spot in middle of each segment.

Pleural surfaces of thorax marked by four black dots on each side, one at base of each subcoxae and one near anterior margin of mesopleuron midway between imaginary line drawn through subcoxal dots and lateral margin of metapleuron. Rather small fuscous dots scattered on femora and tibiae; anterior and middle femora of both sexes armed on inferior face with pair of moderate-sized preapical tubercles, these usually preceded by one to four lesser tubercles, most often by a pair; posterior femora armed with one to three small preapical tubercles; anterior tubercle of pair generally a little stouter than posterior tubercle. Spiracles concolorous with sternites. Abdominal margins narrowly bordered in black at basal angles of each segment.

Emargination of pygophore deep, broad from caudal view (Fig. 26) with mesal production of moderate size evident from ventral and dorsal views (Figs. 27-28). Two subquadrate tubercles protruding from each lateral wall of genital cup, one near apex of parameres al-



FIGS. 35 to 42. *L. trilobus*. Fig. 35. Posterior margin of pygophore, caudal view; inferior ridge (ir). Fig. 36. Pygophore, ventral view with anterior and posterior margins on same focal plane. Fig. 37. Genital cup; inferior ridge (ir), superior ridge (sr), tubercle (t). Fig. 38. Proctiger. Fig. 39. Theca and related structures, right lateral aspect; median penal lobe (mpl), penisfilum (p), thecal process (tp). Fig. 40. Same, dorsal aspect; conjunctiva (c). Fig. 41. Right paramere, anterolateral aspect. Fig. 42. Same, rotated 90° toward observer. Dimensional lines equal 0.5 mm.



most horizontal, other entad and nearly vertical. Pair of ridges on proctiger, one ridge on each side about midway between base and apex, bearing numerous setae; additional setae scattered along mesal region between ridges and apex of proctiger (Fig. 29). Reticulated area on anterolateral surface of parameres extensive (Fig. 33). Thecal processes digitiform, not noticeably compressed (Figs. 31-32). Conjunctiva with lobe above median penal lobes and small appendage on each lateral conjunctival lobe.

TYPE. Male, in Naturhistoriska Riksmuseum, Stockholm. Not seen.

DISTRIBUTION. Argentina: Misiones. Bolivia: Huachi. Brazil: Minas Gerais (type locality); Mato Grosso; Parana; Santa Catarina. Paraguay: Horqueta. Peru: Quillabamba. Uruguay.

COMMENT. In recently collected and well-curved specimens of *L. bilobus*, the last two antennal segments without exception are brown or fuscous beyond the pale basal ring of each segment, but in some old specimens of this species, recognizable by the unique male genitalia, the antennae are entirely light-colored, just as they are in *L. trilobus*. These specimens are probably faded, although they may represent a natural variation, and presumably include some females. Such females, and those lacking the two distal segments of the antennae, present a problem in identification because coloration of the antennae seems to be the only means of separating the females of *L. bilobus* and *L. trilobus*.

*Ladeaschistus trilobus* (Stål), 1872

*Euschistus trilobus* Stål, 1872, Svenska Vet.-Ak. Handl. 10 no. 4 p. 24

Size, form, and color of *L. bilobus* except:

Antennae almost uniformly brownish-yellow with basal third of last segment sometimes a little paler; dorsum usually lighter in color with humeri suffused with rufous.

Posterior margin of pygophore trilobed from both ventral and dorsal views (Figs. 36-37); large triangular tubercle located on dorsal surface of middle lobe cephalad of shallow mesal emargination; tumescent remnant of inferior ridge on mesal margin of lateral lobes especially prominent from caudal view (Fig. 35); tubercle on lateral walls of genital cup large, trapezoidal, nearly horizontal.

TYPE. From the syntype series the following specimen is designated as the LECTOTYPE: Male, labeled (a) Minas Geraes (b) Drews (c) Type (d) ♂ (e) Allotypus. The two remaining syntypes, both females, are PARALECTOTYPES labeled as above except one specimen with (d) ♀ (f) typus, and the other with (d) Paratypus.

The labeling suggests a prior designation of lectotype and paralectotype, but this is not the case.

Distribution. Brazil: Bahia; Mato Grosso; Minas Gerais (type locality).

KEY TO SPECIES

1. Anterolateral margins of pronotum straight, narrowly ivory bordered (Fig. 9); posterior margin of pygophore without median lobe (Figs. 10 to 12, 19 to 21) ..... 3
- 1' Anterolateral margins of pronotum concave, brown to fuscous, only part or all of most denticles pale (Figs. 24 and 25): posterior margin of pygophore with median lobe (Figs. 27, 28, 36, and 37) ..... 2
2. Antennae almost uniformly brownish yellow; median lobe of pygophore emarginate, nearly as long as lateral lobes, bearing stout acute tubercle on dorsal surface (Figs. 36 and 37) ..... *L. trilobus* (Stål)
- 2' Last two segments of antennae normally brown to black beyond pale basal ring; median lobe of pygophore entire, not nearly as long as lateral lobes, without tubercle on dorsal surface (Figs. 27 and 28) ..... *L. bilobus* (Stål)

3. Numerous small pale subcalloused spots of irregular form scattered on dorsum excepting head ..... **L. boliviensis** n. sp.  
 3' Pale marks on dorsum confined to spot behind each cicatrice and spot on disk of each corium ..... *L. armipes* (Stål)

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